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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,424	03/25/2004	Ryoichi Kaku	119245	6949

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EXAMINER	
PARK, EDWARD	

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
12/18/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/808,424	KAKU ET AL.	
	Examiner	Art Unit	
	EDWARD PARK	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is responsive to applicant's amendment and remarks received on 9/24/08. Claims 1-18 are currently pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1, 4, 6, 8, 10, 13, 15, 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mukoyama et al (US 6,831,659 B1) in view of Bothcy (C Magazine; "Speed-up Techniques and thinking Routine for 3D games found Source Code of a 3D game "Doom"").

Regarding **claim 1**, Mukoyama teaches an image generation method for generating an image, the method comprising:

storing object data in an object data storage section (Mukoyama: figure 1, numeral 102);

disposing a plurality of objects in an object space, based on the object data stored in the object data storage section (Mukoyama: figure 14);

controlling a virtual camera (Mukoyama: col. 8, lines 5-27);

disposing in the object space a model object including a plurality of part objects each of which has a projection shape, each of the part objects having a three-dimensional projecting portion projecting from a display surface on which an image is drawn (Mukoyama: figure 15, figure 16; col. 14, lines 35-65; fig. 16, col. 14, 66-67, col. 15, lines 1-14; each display element P is established on the tree object that has a vector v1 that is projected towards the point of view VP, wherein display element P has a image such as a leaf cluster, each display element P can be rotated in any manner about the three rotational axes X, Y, Z that intersect at the center point (center of gravity) thereof); and rotating each of the part objects based on rotational information of the virtual camera so that the display surface of each of the part objects is directed toward the virtual camera (Mukoyama: figure 16). Mukoyama does not teach generating an image viewed form the virtual camera in the object space while performing hidden surface removal processing.

Bothcy teaches generating an image viewed form the virtual camera in the object space while performing hidden surface removal processing ("Billboarding": Bothcy: pgs. 3-4).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Mukoyama reference to utilize hidden surface removal processing as suggested by Bothcy, to "achieve high-speed processing" (Bothcy: pgs. 3-4).

Regarding **claim 4**, Mukoyama teaches disposing a column-shaped part object included in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the part objects about the Y-axis so that the display surface of each of the part objects is directed

toward the virtual camera when the virtual camera rotates about the Y-axis while being directed toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 6**, Mukoyama teaches disposing a column-shaped part object included in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the part objects about an X-axis which is perpendicular to the Y-axis so that the display surface of each of the part objects is directed toward the virtual camera when the virtual camera rotates about the X-axis while being directed toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 8**, Mukoyama teaches wherein part objects include a first part object and a second part object, the first and second part objects being adjacent each other (Mukoyama: figure 14), the method further comprising: disposing the first and second part objects so as to overlap each other in a view image viewed from the virtual camera (Mukoyama: figure 14) or intersect each other even when the virtual camera rotates 360 degrees about a given coordinate axis.

Regarding **claim 10**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with a program for generating an image, the program causing a computer to implement processing (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic

disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27) of the methods of claim 1 (the claim is rejected under the same combinations, teachings, and motivation as claim 1).

Regarding **claim 13**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with the program as defined in claim 10, the program for generating an image, the program causing a computer to implement processing (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27) the method of claim 4 (the claim is rejected under the same combinations, teachings, and motivation as claim 4).

Regarding **claim 15**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with the program as defined in claim 10, the program causing a computer to implement processing (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27) the method of claim 6 (the claim is rejected under the same combinations, teachings, and motivation as claim 6).

Regarding **claim 17**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory with the program as defined in claim 10, (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape,

optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27). The claim is rejected under the same combinations, teachings, and motivation as claim 8.

4. **Claims 2, 3, 5, 7, 9, 11, 12, 14, 16, 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Mukoyama et al (US 6,831,659 B1) with Bothcy (C Magazine; "Speed-up Techniques and thinking Routine for 3D games found Source Code of a 3D game "Doom"") as applied to claim 1, and further in view of Nakagawa (US 2002/0135603 A1).

Regarding **claim 2**, Mukoyama with Bothcy combination discloses all elements as mentioned above in claim 1. Mukoyama with Bothcy combination does not teach storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section; mapping the Z texture stored in the texture storage section on each of the objects; and mapping on each of the part objects the Z texture for setting bump shapes on the display surface by pixel unit.

Nakagawa teaches storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section (Nakagawa: paragraph [0139]); mapping the Z texture stored in the texture storage section on each of the objects (Nakagawa: paragraph [0139]); and mapping on each of the part objects the Z texture for setting bump shapes on the display surface by pixel unit (Nakagawa: figure 3).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Mukoyama with Bothcy combination to utilize texture as suggested by Nakagawa, to "[reduce] processing time" (Nakagawa: paragraph [0006]-[0007]).

Regarding **claim 3**, Mukoyama teaches an image generation method for generating an image comprising:

storing object data in an object data storage section (Mukoyama: figure 1, numeral 102);

disposing a plurality of objects in an object space, based on the object data stored in the object data storage section (Mukoyama: figure 14);

generating the plurality of objects as three-dimensional objects including Z-texture values (see fig. 15, numeral P, fig. 16, col. 14, lines 66-67, col. 15, lines 1-14; each display element P can be rotate in any manner about the three rotation axes X, Y, and Z that intersect at the center point in terms of display element P that is defined in a body coordinate system in a world coordinate system, it is positioned by rotating it a determined rotation angle about each of the axes X, Y, and Z, which configures so that it can be oriented and can be directionally controlled according to the position of the point of view);

controlling a virtual camera (Mukoyama: col. 8, lines 5-27)

disposing a model object having a plurality of part objects in the object space, the part objects being three-dimensional objects projecting from a display surface (Mukoyama: figure 15; figure 16; col. 14, lines 35-65; fig. 16, col. 14, 66-67, col. 15, lines 1-14; each display element P is established on the tree object that has a vector v1 that is projected towards the point of view VP, wherein display element P has a image such as a leaf cluster, each display element P can be rotated in any manner about the three rotational axes X, Y, Z that intersect at the center point (center of gravity) thereof);

rotating each of the part objects based on rotational information of the virtual camera so that a display surface of each of the part objects on which an image is drawn is directed toward

the virtual camera (Mukoyama: figure 16). Mukoyama does not teach storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section; mapping the Z texture stored in the texture storage section on each of the objects; generating an image viewed from the virtual camera in the object space while performing hidden surface removal processing; and mapping on each of the part objects the Z texture for forming a virtual projection shape on the display surface of the part objects by pixel unit.

Bothcy teaches generating an image viewed form the virtual camera in the object space while performing hidden surface removal processing ("Billboarding": Bothcy: pgs. 3-4).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Mukoyama reference to utilize hidden surface removal processing as suggested by Bothcy, to "achieve high-speed processing" (Bothcy: pgs. 3-4).

Nakagawa teaches storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section (Nakagawa: paragraph [0139]); and mapping the Z texture stored in the texture storage section on each of the objects (Nakagawa: paragraph [0139]), and mapping on each of the part objects the Z texture for forming a virtual projection shape on the display surface of the part objects by pixel unit (Nakagawa: figure 3; paragraph [0104] generate the image of the tree by mapping a plate-like polygon 310 onto a texture 320 for the tree which is a two dimensional representation of a three dimensional object).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Mukoyama with Bothcy combination to utilize texture as suggested by Nakagawa, to "[reduce] processing time" (Nakagawa: paragraph [0006]-[0007]).

Regarding **claim 5**, Mukoyama teaches disposing a column-shaped part object included in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the part objects about the Y-axis so that the display surface of each of the part objects is directed toward the virtual camera when the virtual camera rotates about the Y-axis while being directed toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 7**, Mukoyama teaches disposing a column-shaped part object included in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the part objects about an X-axis which is perpendicular to the Y-axis so that the display surface of each of the part objects is directed toward the virtual camera when the virtual camera rotates about the X-axis which is perpendicular to the Y-axis while being directed toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 9**, Mukoyama teaches wherein part objects include a first part object and a second part object, the first and second part objects being adjacent each other (Mukoyama: figure 14), the method further comprising: disposing the first and second part objects so as to overlap each other in a view image viewed from the virtual camera (Mukoyama: figure 14) or intersect each other even when the virtual camera rotates 360 degrees about a given coordinate axis.

Regarding **claim 11**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with the program as defined in claim 10, the program causing a computer to implement processing (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27) the method of claim 2 (the claim is rejected under the same combinations, teachings, and motivation as claim 2).

Regarding **claim 12**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with a program for generating an image, the program causing a computer to implement processing (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27) the method of claim 3 (the claim is rejected under the same combinations, teachings, and motivation as claim 3).

Regarding **claim 14**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with the program as defined in claim 12, the program causing a computer to implement processing (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27) the method of claim 5 (the claim is rejected under the same combinations, teachings, and motivation as claim 5).

Regarding **claim 16**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with the program as defined in claim 12, the program causing a computer to implement processing (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27) the method of claim 7 (the claim is rejected under the same combinations, teachings, and motivation as claim 7).

Regarding **claim 18**, Mukoyama teaches at least one of an optical disc, magnetic optical disc, magnetic disc, hard disc, magnetic tape and memory embedded with the program as defined in claim 12, (provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible; such media include hard disks, magnetic tape, optical magnetic disks, CDs, etc.; Mukoyama: col. 2, lines 47-50, col. 5, lines 14-27). The claim is rejected under the same combinations, teachings, and motivation as claim 9.

Response to Arguments

5. Applicant's arguments filed 9/24/08, in regards to claims 1 and 10 have been fully considered but they are not persuasive. Applicant argues that the combination of Mukoyama and Botchy do not teach each of the part objects having a three-dimensional projection portion projecting from a display surface on which an image is drawn (see pg. 11, fourth paragraph). This argument is not considered persuasive since it is seen in Mukoyama that the cited limitation is disclosed within col. 14, lines 66-67, col. 15, lines 1-26, col. 14, lines 36-65, where each display element P can be rotated in any manner about the rotation axes X, Y, and Z that intersect

at the center point; and controlling the direction of each display element P so that the plurality of display elements P configuring that object faces in the direction of the representative point vector V1; and texture data PT are mapped inside each display element P. These cited sections are equivalent to the limitation since each part object is a display element P which can be rotated in the X, Y, and Z direction, which teaches that the projection objects have three dimensional components and a projection portion that contains an image.

Applicant argues that Mukoyama does not teach a three-dimensional projection portion and Mukoyama only discloses a two-dimensional representation of the three-dimensional image (see pg. 11, last paragraph). This argument is not considered persuasive since the claim limitation calls for the part object having a three-dimensional projection portion projecting from a display surface on which an image is drawn. It does not state that the image is three-dimensional. Regardless, the part objects have a three-dimensional projecting portion which is shown within col. 14, lines 66-67, col. 15, lines 1-26, col. 14, lines 36-65, where each display element P can be rotated in any manner about the rotation axes X, Y, and Z that intersect at the center point. Again, as stated above, the projection objects are in a three-dimensional space and have three-dimensions. Furthermore, the image is located on the part object which is considered a plane and therefore could be interpreted as having three-dimensions since it lies on a plane that has three-dimensional coordinates.

Regarding claims 4, 6, 8, 13, 15 and 17, applicant argues that the claims are allowable due to the dependency from claims 1 and 10 respectively (see pg. 12, third paragraph). This argument is not considered persuasive since claims 1 and 10 stand rejected and the arguments and rejection can be seen above.

Regarding claims 3 and 12, applicant argues that the Mukoyama, Botchy, and Nakagawa combination does not teach part object being three-dimensional object projecting from a display surface (see pg. 12, fifth and sixth paragraph). This argument is not considered persuasive due to the same reasons as stated above in the arguments for claims 1 and 10.

Regarding claims 2, 5, 7, 9, 11, 12, 14, 16, and 18, applicant argues that the claims are allowable due to the dependency from claims 1, 3, 10 and 12 respectively (see pg. 12, last paragraph). This argument is not considered persuasive since claims 1, 3, 10 and 12 stand rejected and the arguments and rejection can be seen above.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDWARD PARK whose telephone number is (571)270-1576. The examiner can normally be reached on M-F 10:30 - 20:00, (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Edward Park
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